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In the Claims

What is claimed is:

1. (Previously Presented) A method comprising the steps of:

acquiring k-space data from multiple echoes in an echo train with a fast spin echo pulse sequence;

correcting the acquired k-space data for amplitude modulation effects in the fast spin echo pulse sequence; and

2D Fourier transforming the corrected k-space data to form an image space from which an image is reconstructed.

2. (Previously Presented) The method of claim 1 wherein the step of correcting includes the steps of:

acquiring at least one set of reference k-space data;

determining a table of amplitude modulation correction values; and

applying at least a portion of the table to the acquired k-space data.

3. (Previously Presented) The method of claim 2 further comprising the steps of acquiring at least one set of reference k-space data before and after acquisition of the k-space data.

4. (Previously Presented) The method of claim 2 further comprising the steps of acquiring at least one set of reference k-space data before acquisition of the k-space data and acquiring a second portion of the at least one set of reference k-space data after acquisition of the k-space data.

5. (Previously Presented) The method of claim 2 wherein the at least one set of reference k-space data includes non-phase encoded data.

6. (Previously Presented) The method of claim 2 wherein the steps of applying includes the steps of:

multiplying each k-space view of the acquired k-space data by a correction value in a corresponding k_y location in the table; and

2

Robert D. Peters   S/N: 10/707,433

carrying out the steps of multiplying prior to transformation of the acquired k-space data from k-space to image space.

7.   (Previously Presented) The method of claim 2 wherein the at least one set of reference data includes two sets of reference data, and further comprising the steps of averaging the two sets of reference data to determine the table of correction values.

8.   (Previously Presented) The method of claim 5 wherein the at least one set of reference data represents a maximum achievable signal that the acquired phase encoded k-space data can attain.

9.   (Previously Presented) The method of claim 1 wherein the k-space data is acquired via multiple receiver coils, and further comprising the steps of correcting for amplitude modulation effects in the k-space data from each receiver coil independently.

10.   (Original) The method of claim 9 further comprising the steps of generating a combined image from corrected image data from each receiver coil.

Previously Presented) An MRI apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images; and

a computer programmed to:

(A) acquire at least one set of reference MR data;

(B) determine a table of amplitude modulation correction values from the reference MR data;

(C) acquire MR data with a fast spin echo pulse sequence; and

(D) modify the acquired MR data while the MR data is entirely in k-space by the table of amplitude modulation correction values to account for amplitude modulation effects in a fast spin echo pulse sequence played out to acquire the MR data.

3

Robert D. Peters   S/N: 10/707,433

12.   (Original) The MRI apparatus of claim 11 wherein the computer is further programmed to acquire the at least one set of reference MR data from one or more discarded acquisitions played out one of prior to and after acquisition of the MR data.

13.   (Original) The MRI apparatus of claim 11 wherein the computer is further programmed to acquire portions of the at least one set of reference MR data prior to and after acquisition of the MR data.

14.   (Previously Presented) The MRI apparatus of claim 11 wherein the at least one set of reference MR data includes non-phase encoded data and the acquired MR data is modified while in k-space.

15.   (Canceled)

16.   (Original) The MRI apparatus of claim 11 wherein the RF coil assembly includes a phased array of receiver coils.

17.   (Original) The MRI apparatus of claim 16 wherein the computer is further programmed to carry out acts (A)-(D) independently for each receiver coil.

18.   (Original) The MRI apparatus of claim 11 wherein the computer is further programmed to generate an image space from the modified MR data.

19.   (Previously Presented) A computer readable storage medium having a computer program to execute a fast spin echo pulse sequence stored thereon and representing a set of instructions that when executed by a computer causes the computer to:

       acquire non-phase encoded MR data;

       acquire phase encoded MR data from multiple echoes;

       generate a set of amplitude correction values from the non-phase encoded MR data;

       arrange the set of amplitude correction values in a table dimensionally equivalent to a k-space of phase encoded MR data; and

4

modify the phase encoded MR data by the non-phase encoded MR data to correct amplitude modulation between the multiple echoes by modifying each data point of k-space with a similarly positioned amplitude correction value.

20. (Original) The computer readable storage medium of claim 19 wherein the set of instructions further causes the computer to acquire the non-phase encoded MR data from a series of discarded acquisitions played out at least one of before and after acquisition of the phase encoded MR data.

21. (Original) The computer readable storage medium of claim 19 wherein the phase encoded data includes one of 2D and 3D MR data.

22. (Original) The computer readable storage medium of claim 19 wherein the non-phase encoded MR data represents a maximum achievable signal that the phase encoded MR data can attain.

23. (Canceled)

24. (Original) The computer readable storage medium of claim 19 wherein the set of instructions further causes the computer to amplitude correct acquired phased encoded MR data without increasing scan time.

25. (Original) The computer readable storage medium of claim 19 wherein the set of instructions further causes the computer to carry out a pre-scan of a subject and acquire the non-phase encoded MR data after the pre-scan but before acquisition of the phase encoded MR data.

26. (Original) The computer readable storage medium of claim 19 incorporated into a computer data signal embodied in a carrier wave that is uploadable/downloadable to an MR imaging system.